**STATE OF MAINE**
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**DEPARTMENT ORDER**
IN THE MATTER OF

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| FPL ENERGY MAINE HYDRO LLC | ) | MAINE WATER QUALITY PROGRAM; |
| Lewiston, Auburn, Turner, Greene, Leeds, and | ) | FEDERAL CLEAN WATER ACT |
| Livermore, Androscoggin County | ) | |
| GULF ISLAND-DEER RIPS HYDRO PROJECT | ) | |
| | ) | |
| #L-17100-33-O-N (APPROVAL) | ) | WATER QUALITY CERTIFICATION |

Pursuant to the provisions of 38 MRSA Section 464 et seq. and Section 401 of the Federal Water Pollution Control Act ("Clean Water Act"), the Department of Environmental Protection has considered the application of FPL ENERGY MAINE HYDRO LLC with its supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. APPLICATION SUMMARY

   a. Application. The applicant proposes the continued operation of the Gulf Island-Deer Rips Hydro Project, located on the Androscoggin River in the Cities of Auburn and Lewiston and the Towns of Greene, Turner, Leeds and Livermore, Androscoggin County, Maine (see Exhibit 1).

   b. Existing Project Features. The existing project consists of two dams and associated impoundments, three powerhouses, and appurtenant facilities (see Exhibits 2, 3, and 4).

      i. Gulf Island Dam. Gulf Island Dam is a concrete gravity and earthen fill dam with a total length of 2,488 feet and a maximum height of 92 feet. Constructed in 1925-26, the dam consists of earth dikes with concrete core walls at either end of a concrete structure with an overflow spillway section topped by a 7-foot-high inflatable flashboard system (installed in 2002 to replace 7-foot-high hinged steel flashboards), a gated spillway section, an intake section, and a non-overflow bulkhead section.

      ii. Gulf Island Pond. Gulf Island Dam creates an impoundment, known as Gulf Island Pond, that has a surface area of about 2,862 acres and that extends upstream almost 15 miles at a normal full pond elevation of 262 feet msl.

      iii. Gulf Island Station. The Gulf Island powerhouse is a brick, steel and concrete structure that is integral with the dam. The powerhouse contains three turbine-generator units rated at a total generating capacity of 22,200 kilowatts at a gross operating head of 56 feet. The maximum hydraulic capacity of the station is 6,450 cubic feet per second.

iv. Deer Rips Dam. Deer Rips Dam is a 933-foot-long concrete gravity dam with a maximum height of about 50 feet. Originally constructed in 1902-04, the dam consists of two forebay/headworks sections, a waste gate section, and four overflow spillway sections topped by 4-foot-high pinned wooden flashboards. The west headgate structure directs flows to a forebay or intake canal, measuring 650 feet long by 75 feet wide and formed by concrete and cut bedrock retaining walls, that leads to the Deer Rips powerhouse. The east headgate structure directs flows to a 45-foot-long by 38-foot-wide forebay with concrete retaining walls that leads to the Androscoggin No. 3 powerhouse.

v. Deer Rips Impoundment. Deer Rips Dam creates an impoundment with a surface area of about 130 acres at a normal full pond elevation of 205.7 feet msl. The impoundment extends upstream about 1.3 miles to the base of the Gulf Island Dam.

vi. Deer Rips Station. The Deer Rips powerhouse is a steel, brick and concrete structure containing seven turbine-generator units that were installed between 1902 and 1924. The total rated generating capacity of the units is 6,917 KW (nameplate capacity) at a gross operating head of 32 feet. The maximum hydraulic capacity of the station is 3,345 cfs.

vii. Androscoggin No. 3 Station. The Androscoggin No. 3 powerhouse is a steel, brick and concrete structure built in 1927-28. The powerhouse contains a single turbine-generator unit with a rated generating capacity of 3,600 KW at a gross operating head of 32.7 feet. The maximum hydraulic capacity of the station is 1,775 cfs.

c. Existing Project Operation.

i. Gulf Island Station. Gulf Island Station is operated as an intermittent peaking facility that re-regulates river flow through the use of available storage.

At inflows approaching the station's maximum effective hydraulic capacity of 5,895 cfs, the station is operated to provide base load power, with the generating units running 24 hours a day and with minimal impoundment fluctuations. River flows in excess of the maximum station capacity are spilled through the gates or over the dam. Spillage occurs about 23% of the time on an average annual basis.

At inflows significantly below 5,895 cfs, the station is operated during weekday morning and evening peak power periods, when electrical demand is highest. Passing generating flows in excess of inflows results in the impoundment being drawn down, typically between two and four feet, over the course of a week. The impoundment is refilled during off-peak weekday hours and over the weekend. Drawdowns of about 5 feet occur in anticipation of high spring inflows or maintenance.

Historically, ouflows from Gulf Island were reduced to leakage (essentially zero flow conditions) during the weekend refill period. However, since 1986, the station has been operated to provide a minimum flow release of 1,000 cfs during all non-generation periods to meet an interim minimum flow requirement of 1,000 cfs at the downstream Lewiston Falls Project.

ii. Deer Rips and Androscoggin No. 3 Stations. The Deer Rips and Androscoggin No. 3 Stations are operated as run-of-river facilities, utilizing the inflows provided from Gulf Island with minimal impoundment fluctuations. As a result, these stations provide base load and peaking power under conditions similar to that at Gulf Island, and outflows here are approximately equal to the flows released from Gulf Island.

d. Proposed Facilities/Operation. The applicant proposes the following operational and non-operational measures for the protection, mitigation and enhancement of public resources:

- Continue to participate in the partnership with upstream paper companies to maintain the Gulf Island Pond Oxygenation Project;
- Provide a minimum flow release through the project of 1,100 cfs or inflow, whichever is less;
- Restrict the downramping of flows at the combined Deer Rips/Androscoggin No. 3 stations;
- Limit normal weekly impoundment drawdowns of Gulf Island Pond to no greater than one foot from May 1 through June 30, and four feet from July 1 through April 30;
- Maintain run-of-river operation of the Deer Rips development, with minimal impoundment fluctuations during normal project operations;
- Maintain numerous existing recreational access facilities and access sites; and
- Provide several new recreational access facilities.

2. JURISDICTION

The proposed continued operation of the project qualifies as an "activity...which may result in (a) discharge into the navigable water (of the United States)" pursuant to the Clean Water Act (CWA), 33 USC 1251 et seq. Section 401 of the CWA requires that any applicant for a federal license or permit to conduct such an activity obtain a certification that the activity will comply with applicable State water quality standards. State law authorizes the Department to issue a water quality certification pursuant to Section 401 of the CWA when

the standards of classification of the water body and the State's antidegradation policy are met. 38 MRSA Section 464(4)(F)(3).

The Gulf Island-Deer Rips Project was originally licensed to Central Maine Power (CMP) as Project No. 2283 by the Federal Power Commission (now the Federal Energy Regulatory Commission, or FERC) on July 5, 1962. The project license was issued with an effective date of July 1, 1958, and an expiration date of December 31, 1993.

On December 10, 1991, CMP filed an Application for New License to continue to operate the Gulf Island-Deer Rips Project. This application is currently pending before FERC. In accordance with FERC Relicensing Regulations, the project is currently operating under an annual license which is automatically renewed each year until a relicensing decision is made.

In 1999, the project was transferred from CMP to FPL Energy.

The DEP has been designated by the Governor of the State as the certifying agency for issuance of Section 401 water quality certification for all activities in the state not subject to Land Use Regulation Commission permitting and review. The Gulf Island-Deer Rips Project is located in an organized municipality that is not subject to LURC's regulatory jurisdiction.

3. APPLICABLE WATER QUALITY STANDARDS

a. Classification. The receiving waters that are or may be affected by the project are currently classified as follows:

Androscoggin River, main stem, including all impoundments, from the Ellis River to a line formed by the extension of the Bath-Brunswick boundary across Merrymeeting Bay in a northwesterly direction—Class C. 38 MRSA Section 467(1)(A)(2).

b. Designated Uses. Class C waters must be of such quality that they are suitable for the designated uses of drinking water supply after treatment; fishing; agriculture; recreation in and on the water; industrial process and cooling water supply; hydroelectric power generation; navigation; and as habitat for fish and other aquatic life. 38 MRSA Section 465(4)(A).

c. Numeric Standards. The dissolved oxygen content of Class C waters shall be not less than 5 parts per million or 60% of saturation, whichever is higher, except that in identified salmonid spawning areas where water quality is sufficient to ensure spawning, egg incubation and survival of early life stages, that water quality sufficient for these purposes shall be maintained. 38 MRSA Section 465(4)(B).

In accordance with 38 MRSA Section 464(13), enacted as Public Law 2003, Chapter 257, compliance with dissolved oxygen criteria in existing riverine impoundments is measured as follows:

- Compliance is not measured within 0.5 meters of the bottom;

- Where mixing is inhibited due to thermal stratification, compliance is not measured below the higher of the point of thermal stratification when such stratification occurs or the point proposed by the DEP as an alternative depth for a specific riverine impoundment based on all factors included in 38 MRSA Section 466(11-A) and for which a use attainability analysis is conducted if required by the United States Environmental Protection Agency; and

- Where mixing is inhibited due to natural topographical features, compliance is not measured within that portion of the impoundment that is topographically isolated. Such natural topographical features may include, but not be limited to, natural deep holes or river bottom sills.

In a letter dated February 9, 2004, the U.S. Environmental Protection Agency has found the provisions of Chapter 257 to be consistent with the requirements of Section 303 of the Clean Water Act.

d. Narrative Standards. Discharges to Class C waters may cause some changes to aquatic life, provided that the receiving waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters and maintain the structure and function of the resident biological community. 38 MRSA Section 465(4)(C).

The habitat characteristics and aquatic life criteria of Class C are deemed to be met in an existing impoundment which is classified C provided that any reasonable changes are implemented that do not significantly affect existing energy generation capability and that would result in an improvement in the habitat and aquatic life of the impounded waters. Where the actual quality of the impounded waters attains any more stringent habitat characteristic or aquatic life criteria than that required under Class C, that existing water quality must be maintained and protected. 38 MRSA Section 464(10).

e. Antidegradation. The Department may only approve water quality certification if the standards of classification of the waterbody and the requirements of the State's antidegradation policy will be met. The Department may approve water quality certification for a project affecting a waterbody in which the standards of classification are not met if the project does not cause or contribute to the failure of the waterbody to meet the standards of classification. 38 MRSA Section 464(4)(F).

4. DISSOLVED OXYGEN

a. Existing Conditions. The Androscoggin River above Gulf Island Pond receives treated wastewater discharges from a number of large and small industrial and municipal point sources, including three pulp and paper mills. These discharges adversely affect dissolved oxygen (DO) levels in the river by adding oxygen demanding pollutants (BOD load) to the water.

In addition, DO levels are adversely affected by the presence of numerous dams on the river. These dams reduce natural reaeration, increase time of travel for river water and its pollutant load, increase water temperatures, and create settling basins for pollutants. This is especially true of Gulf Island Dam, which creates an artificial pond almost 15 miles long and up to 80 feet deep.

While DO levels in the river have improved significantly over the last 20 years, Class C DO standards are still not always met at depths of 30 to 80 feet in Gulf Island Pond during the summer. This non-attainment is a result of the residual BOD load in the river, the long time of travel through the impoundment, the poor vertical mixing of the impoundment during the summer, and the significant sediment oxygen demand (SOD) in the impoundment.

In addition, Class C DO standards have not always been met in the Deer Rips and Lewiston Falls impoundments. This non-attainment has been caused by the release of water with sub-standard levels of DO from Gulf Island Dam, and the lack of natural reareation in the river between Gulf Island and Lewiston Falls.

The four-mile-long segment of Gulf Island Pond directly above Gulf Island Dam is currently included on the State's 303(d) list of river segments that do not attain assigned water quality standards.

A deep hole exists in Gulf Island Pond a short distance upstream from Gulf Island Dam. This natural topographical feature inhibits mixing in the pond, and results in that portion of the impoundment below a depth of 60 feet being topographically isolated.

b. Initial Water Quality Modeling. Water quality modeling undertaken during the 1980's by DEP and the paper companies discharging to the river indicated that, under pre-1991 wastewater discharge limitations, 65% of the volume of Gulf Island Pond would violate Class C DO standards under low flow (7Q10) conditions. This modeling also revealed that reducing or even eliminating BOD loading from upstream point sources would not be enough to bring DO levels in Gulf Island Pond into compliance with standards.

c. Oxygenation Project. Based on the results of the water quality modeling, DEP worked with the paper companies and Central Maine Power Company to evaluate alternatives for improving DO levels in Gulf Island Pond and in the Deer Rips and Lewiston Falls

impoundments. It was determined that injecting oxygen directly into Gulf Island Pond was the most viable option.

CMP (now FPL Energy) then voluntarily joined with James River Company (now Fraser Paper), Boise-Cascade (now Rumford Paper Company), and International Paper Company to form the Gulf Island Pond Oxygenation Partnership. The Partnership has been responsible for constructing, operating and maintaining an oxygenation injection facility, known as the Gulf Island Pond Oxygenation Project (GIPOP), located at a site about 5 miles upstream of Gulf Island Dam called Upper Narrows, one of two hydrologic constrictions on the pond. The facility has been operational since June 1, 1992. FPL Energy pays 14% of annual GIPOP operating and maintenance costs, pursuant to the GIPOP Agreement of General Partnership dated January 9, 1991.

Initially, GIPOP was operated to inject 73,000 pounds of oxygen into Gulf Island Pond (resulting in a dissolved oxygen input of 27,000 pounds) every 24 hours from July 1 to September 30 annually. In 1999, the DEP approved a revised GIPOP operational plan designed to maximize the transfer of oxygen to the river when needed to meet water quality standards and to minimize the transfer of oxygen when not needed to meet standards. Under the revised operational plan, GIPOP operation begins and ends when the 3-day average water temperature at Turner Bridge is greater than 18 degrees Celsius in June and less than 21 degrees Celsius in September, respectively. Once begun in June, GIPOP operation continues until ending in September, with oxygen injection rates ranging from 8,000 to 91,000 pounds per day depending on river flows and water temperatures.

Water quality monitoring since 1992 indicates that, initially after the operation of GIPOP began, there were significant improvements in DO levels in Gulf Island Pond. However, there has been minimal additional improvement in DO levels since 1993, and present DO levels in the impoundment still fail to attain applicable standards.

In addition, water quality monitoring since GIPOP went on-line in 1992 indicates that DO standards are maintained in the Deer Rips and Lewiston Falls impoundments, as well as in the river below Lewiston Falls, as long as DO levels of at least 5 parts per million are achieved in the Gulf Island tailrace.

d. 2002 Modeling Report. In 1999 and 2000, additional data were collected in Gulf Island Pond to update the water quality model to current conditions. The results of this data collection and modeling effort are contained in a June 2002 Androscoggin River Modeling Report.

Based on the available water quality monitoring data, the DEP concluded that about 10% of the modeled volume of Gulf Island Pond does not meet Class C minimum instantaneous dissolved oxygen criteria of 5 parts per million under summer low flow and high water temperature conditions and at current point source discharge levels and

oxygen injection levels. The DEP also concluded that, under summer low flow and high water temperature conditions and at current point source discharge levels and oxygen injection levels, about 23% of the modeled volume of the pond does not meet the minimum monthly average dissolved oxygen level of 6.5 parts per million needed to satisfy Class C narrative criteria for the support of indigenous fish. Non-attainment of DO standards is typically limited to that portion of the pond within 4 miles of Gulf Island Dam and at depths below 35 feet and is based on actual measured conditions in the pond.

Based on the available water quality monitoring data, the DEP further concluded that mixing in Gulf Island Pond is inhibited by intermittent thermal stratification during the summer months, and that the point of thermal stratification occurs at a depth of 60 feet in the pond.

The DEP's updated 2002 modeling predicted that, with all upstream point sources at zero discharge levels and Gulf Island Dam in place, dissolved oxygen standards would only be met above the point of thermal stratification in Gulf Island Pond with the injection of 92,000 pounds per day of oxygen at Upper Narrows, at an oxygen efficiency transfer rate of 33%. DEP modeling also predicted that dissolved oxygen standards could be met in Gulf Island Pond through a combination of additional oxygen injection at a site located about 3 miles above Gulf Island Dam called Lower Narrows (the other hydrologic constriction on the pond) and reductions in licensed point source discharges.

Finally, an analysis by the DEP of hydropower generation at the Gulf Island Project indicated that the intermittent peaking operation of the facility does not appear to be negatively affecting dissolved oxygen levels in Gulf Island Pond.

e. Oxygenation Study. In 2004, at DEP's request, the Gulf Island Pond Oxygenation Partnership undertook an engineering study to determine the effectiveness of the existing oxygenation system and to determine the feasibility and cost of supplemental oxygenation alternatives. The results of this study are contained in a report titled Gulf Island Pond Oxygenation Study, Greene, Maine (December 2004), prepared by Wright-Pierce Civil and Environmental Engineering Services.

Based on available estimates and site data, Wright-Pierce calculated the theoretical overall oxygen transfer efficiency for the existing oxygenation system to be on the order of 25% to 30%, depending on the oxygen flow and the river flow.

Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that the gross oxygen transfer efficiency of the existing oxygenation system could be improved by increasing the oxygen diffuser surface area/reducing the oxygen bubble size (i.e., by installing new membrane diffusers) or by an alternative oxygen diffuser configuration (i.e., by installing two diffusers parallel to the shoreline).

Wright-Pierce also evaluated the technical and financial feasibility of various alternative aeration methodologies, including standard diffuser systems, side stream pumping systems, line diffuser systems, and mixers. Based on additional hydraulic modeling conducted for the study, Wright-Pierce concluded that there were several alternatives of essentially equivalent 15-year total costs which would probably result in compliance with DO standards to the thermocline (i.e., the point of thermal stratification) in Gulf Island Pond. These alternatives included: using new or existing oxygen diffusers at Upper Narrows plus new line oxygen diffusers, at an assumed oxygen efficiency transfer rate of 45%, piped from the existing oxygenation facility to Lower Narrows and the Deep Hole above Gulf Island Dam; and using new or existing oxygen diffusers at Upper Narrows plus new mixers installed between Lower Narrows and Gulf Island Dam.

f. TMDL Report. In May 2005, DEP issued an Androscoggin River Total Maximum Daily Load (TMDL) Report. This report included the results of additional water quality data collection during the summer of 2004. Revised water quality modeling conducted by DEP in support of the TMDL predicts that, with waste load allocations implemented as proposed in the TMDL (expressed as carbonaceous biochemical oxygen demand, ortho-phosphorus, total phosphorus, and total suspended solids loads to Gulf Island Pond), and assuming an oxygen transfer efficiency rate of 33%, oxygen injection rates of up to 105,000 pounds per day at Upper Narrows and up to 105,000 pounds per day at Lower Narrows will result in dissolved oxygen standards being met in Gulf Island Pond. DEP modeling also predicts that there are other options for injecting oxygen into Gulf Island Pond that will meet DO standards in the pond.

   By letter dated July 18, 2005, EPA approved the DEP's TMDL for Gulf Island Pond.

g. Applicant's Proposal. To protect and enhance dissolved oxygen levels, the applicant proposes to continue to participate in the partnership with upstream paper companies to maintain the Gulf Island Pond Oxygenation Project.

h. Discussion. The evidence in the record indicates that the non-attainment of dissolved oxygen standards (both modeled and monitored) in Gulf Island Pond is the result of (1) the impact of point source discharges of pollutants, (2) the settling and decomposition of algae, (3) the hydrologic conditions created by Gulf Island Dam, and (4) the impact of natural conditions and non-point sources of pollution. Were it not for the presence and hydrologic impacts of Gulf Island Dam, and with point source discharges operating at current licensed limits, the Androscoggin River in the almost 15 mile-long river reach impounded by the dam would meet Class C dissolved oxygen standards, particularly under dry weather conditions when the effect of non-point source pollution on dissolved oxygen levels is minimal. It therefore follows that the dam causes or contributes to the violation of dissolved oxygen standards in the river, and that appropriate mitigation measures must be taken to eliminate the dam's continuing contribution to the violation of standards.

The evidence in the record also indicates that, if a total of up to 105,000 pounds per day of oxygen is injected at Upper Narrows, at an oxygen transfer efficiency rate of 33%, then FPL Energy's share of this oxygen under the terms of the existing Gulf Island Pond Oxygenation Partnership agreement would amount to 14,700 pounds of oxygen. This is insufficient to fully eliminate the continuing contribution of Gulf Island Dam to the violation of DO standards in Gulf Island Pond.

Finally, the evidence in the record indicates that, if FPL Energy contributes to the injection of up to 105,000 pounds per day of oxygen at Upper Narrows under the terms of the existing Gulf Island Pond Oxygenation Partnership agreement, at an oxygen transfer efficiency rate of 33%, then in order to fully eliminate the contribution of Gulf Island Dam to the violation of DO standards in Gulf Island Pond, FPL Energy would also need to inject up to 55,900 pounds per day of oxygen at Lower Narrows, at an oxygen transfer efficiency rate of 33%. This represents 53% of the total of up to 105,000 pounds per day of oxygen needed to be injected at Lower Narrows which, in combination with the injection of a total of up to 105,000 pounds per day of oxygen at Upper Narrows and the reductions in upstream point source pollutant loads proposed in the TMDL, is predicted to result in the attainment of dissolved oxygen standards in Gulf Island Pond.

It is noted that the total amount of oxygen injection needed to meet DO standards in Gulf Island Pond may be adjusted as a result changes in point source discharges to the pond, increased oxygen transfer efficiencies, variations in the locations and relative amounts of oxygen injection into the pond, follow-up compliance monitoring, and future revisions to the DEP's water quality model and TMDL.

In view of the evidence in the record, the injection by FPL Energy of up to 14,700 pounds per day of oxygen at Upper Narrows and up to 55,900 pounds per day of oxygen at Lower Narrows, at an oxygen transfer efficiency rate of 33%, or other equivalent measures as may be approved by the Department, is necessary to mitigate the impact of Gulf Island Dam on dissolved oxygen levels in Gulf Island Pond and support the conclusion that the continued operation of the Gulf Island Project will not cause or contribute to the violation of applicable water quality standards in the Androscoggin River. An operational plan for injecting the required oxygen, or for taking other equivalent measures as may be approved by the Department, should be prepared by FPL Energy, in consultation with the upstream paper companies. Follow-up monitoring should be conducted by FPL Energy, in consultation with the upstream paper companies, to assure that the additional oxygenation and reduced point source discharges implemented pursuant to the TMDL are sufficient to meet dissolved oxygen standards in Gulf Island Pond.

5. ALGAE BLOOMS

a. Existing Conditions. The Androscoggin River above Gulf Island Dam receives treated waste water discharges from a number of large and small industrial and municipal point

sources, including three pulp and paper mills. These discharges include nutrients, primarily phosphorus, that promote the growth of algae in the river. Excessive phosphorus levels can lead to algae blooms, which results in the affected waters being unsuitable for the designated use of recreation in and on the water and may contribute to low levels of dissolved oxygen.

In addition, the presence of numerous dams on the river contributes to algae growth by increasing time of travel for river water and its pollutant load and reducing vertical mixing within the water column. This is especially true of Gulf Island Dam, which creates an artificial pond almost 15 miles long and up to 80 feet deep.

Finally, algae growth and the development of algae blooms have increased in Gulf Island Pond in recent years due to color reductions in the discharges from upriver paper mills.

Currently, algae blooms occur in Gulf Island Pond every summer.

b. 2002 Modeling Report. In 1999 and 2000, additional data were collected in Gulf Island Pond to update an earlier water quality model to current conditions. The results of this data collection and modeling effort are contained in a June 2002 Androscoggin River Modeling Report.

The DEP's updated modeling predicted that, with Gulf Island Dam in place, there would need to be significant reductions or an elimination of current phosphorus discharges to Gulf Island Pond in order for algae, as measured by chlorophyll-a levels, to fall below the threshold for blooms.

c. TMDL Report. In May 2005, DEP issued an Androscoggin River Total Maximum Daily Load (TMDL) Report. The report included the results of additional water quality data collection during the summer of 2004. Revised water quality modeling conducted by the DEP in support of the TMDL Report predicts that, with all upstream point sources at zero discharge levels and with Gulf Island Dam in place, chlorophyll-a levels (used as a measure of algae) increase from a value of 2.4 parts per billion (ppb) at the upstream boundary of the pond to a pond-averaged value of 4.5 ppb. Thus, the dam causes a 2 ppb increase in chlorophyll-a levels in Gulf Island Pond. The DEP's revised modeling also predicts that, with waste load allocations implemented as proposed in the TMDL (expressed as total phosphorus and ortho-phosphorus loads to Gulf Island Pond), algae blooms will be eliminated and the designated use of recreation in and on the water will be met in Gulf Island Pond.

By letter dated July 18, 2005, EPA approved the DEP's TMDL for Gulf Island Pond.

d. Applicant's Proposal. The applicant makes no proposal to mitigate the impact of Gulf Island Dam on algae blooms in Gulf Island Pond.

e. Discussion. The evidence in the record indicates that the non-attainment of the designated use of recreation in and on the water in Gulf Island Pond is due to algae blooms which are the result of (1) the impact of point source discharges of pollutants and (2) the hydrologic conditions created by Gulf Island Dam. Were it not for the presence and hydrologic impacts of Gulf Island Dam, and with point sources operating at current licensed limits, the Androscoggin River in the almost 15 mile-long river reach impounded by the dam would not experience algae blooms and would be suitable for the designated use of recreation in and on the water. It therefore follows that the dam causes or contributes to the violation of designated use standards in the river, and that appropriate mitigation measures must be taken to eliminate the dam's continuing contribution to the violation of standards. However, short of significantly reducing or even eliminating the impoundment created by Gulf Island Dam, with its attendant adverse environmental and energy impacts, there is likely nothing that can be done directly at the dam or in Gulf Island Pond to mitigate the dam's continuing contribution to algae blooms.

The evidence in the record also indicates that reductions in phosphorus discharges from upstream paper mills and the Livermore Falls municipal wastewater treatment plant would result in the elimination of algae blooms in Gulf Island Pond.

Finally, the evidence in the record indicates that, in order to reduce the discharge of phosphorus from the Livermore Falls municipal wastewater treatment plant, equipment would need to be added to the facility to allow for the addition of chemicals to remove phosphorus from the plant effluent. Additional treatment here is more valuable than treatment at other sources, because this source is closest to Gulf Island Pond and, as result, all of the phosphorus discharged from the Livermore plant is available to support algae growth in the pond. The treatment of phosphorus at the Livermore Falls treatment plant is expected to reduce average chlorophyll-a levels in Gulf Island Pond by about 1 ppb. The estimated capitol cost of the equipment needed for chemical addition to remove phosphorus from the Livermore treatment plant effluent is about $100,000.

In view of the evidence in the record, the contribution of $100,000 by FPL Energy towards the capitol cost of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plant effluent is the most cost-effective and efficient way to mitigate the impact of Gulf Island Dam on algae blooms in Gulf Island Pond. Therefore, the contribution of $100,000 by FPL Energy towards the capitol cost of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plant effluent, or other equivalent measures as may be approved by the Department, is appropriate and necessary to mitigate the impact of Gulf Island Dam on the designated use of recreation in and on the water in Gulf Island Pond and support the conclusion that the continued operation of the Gulf Island Project will not cause or contribute to the violation of applicable water quality standards in the Androscoggin River.

6. FISH RESOURCES

a. Existing Resources. The Androscoggin River in the project area currently supports both warmwater and coldwater resident fish species. Warmwater species found in Gulf Island Pond include largemouth and smallmouth bass, chain pickerel, white and yellow perch, and landlocked alewife. Coldwater species include stocked brown trout and other native salmonids.

No anadromous fish species are currently present in the project impoundments. Historically, the range of Atlantic salmon was to Rumford, but the Great Falls in Lewiston presented a barrier to other sea-run species.

Gulf Island Pond is best known for its excellent black bass fishery. The impoundment is the site of regular bass fishing tournaments and is heavily utilized by fishermen seeking trophy size fish.

b. Existing Management Plans. The Department of Inland Fisheries and Wildlife (DIF&W) currently manages Gulf Island Pond for naturally reproducing black bass and stocked brown trout, and manages the river below Deer Rips Dam for bass, pickerel, perch and brown trout.

The Department of Marine Resources (DMR) is currently working to restore anadromous alewives and shad to the river below Lewiston Falls and to various tributary systems. Since 1983, migrating shad and alewives have been trapped and counted at CMP's Brunswick Hydro Station, and have then been either released back into the river or trucked to suitable upstream spawning areas. Supplemental alewife and shad brood stock have been trucked to the Androscoggin River Basin from other drainages.

The Atlantic Salmon Commission (ASC) plans to eventually restore Atlantic salmon to the Androscoggin River, but has yet to develop a specific timetable for restoration. Since 1983, any salmon that have ascended the Brunswick fishway have been released into the river.

Currently, upstream and downstream fish passage facilities for all anadromous species are in operation at the three main stem dams below Lewiston Falls (Brunswick, Pejepscot and Worumbo). There are no fishways in place at the Lewiston Falls, Deer Rips or Gulf Island Dams, and there are no plans by state agencies to require fishways at these dams in the forseeable future.

c. Water Level Management Study. In response to concerns expressed by state and federal fisheries agencies regarding the impacts of fluctuating Gulf Island impoundment levels on fisheries, the applicant undertook a water level management study. The objectives of the study were (1) to provide further information on the health and condition of the Gulf Island Pond bass population and (2) to determine the impact of current project operations

and the resulting fluctuating pond levels on bass habitat. The study was also designed to look at the impacts of water level fluctuations on wildlife and wetlands.

i. Bass Population Analysis. To provide further information on the health and condition of the bass population, the applicant's consultants analyzed all available fisheries data and interviewed expert anglers who frequently use Gulf Island Pond.

Based on these investigations, the applicant has concluded that there is no lack of juvenile and smaller size bass and that the bass population is not imbalanced with a disproportionate number of older and larger fish. The applicant has also concluded that there is no evidence that bass reproduction is being significantly limited by current project operations.

ii. Bass Habitat Analysis. To determine the impact of water level fluctuations on bass habitat, the applicant conducted a two-part study involving (1) a detailed field survey of the shallow water habitat impacted by historic impoundment fluctuations and (2) use of the Habitat Evaluation Procedure (HEP) to assess bass habitat value in the impoundment.

The results of the habitat survey indicate that, at an average drawdown of 3 feet, about 292 acres or 10% of the total impoundment area is dewatered, with the great majority of the affected substrate being mud, silt and sand. The survey also indicated that cover for fish (aquatic vegetation, downed trees, woody debris and coarse substrate), while present in only about 25% of the total shoreline area, appears to exist in the same relative abundance both within and below the 3-foot drawdown zone.

The results of the HEP study indicate that, under existing drawdown conditions, habitat suitability is high for largemouth bass and relatively low for smallmouth bass, with total bass habitat units conservatively estimated at 2,232 Habitat Units.

Based on these investigations, the applicant has concluded that existing project operations are not limiting the existing bass fishery. The applicant notes that there is evidence of significant populations of bass currently existing in Gulf Island impoundment, and that this fishery has sustained itself over the past 30 years under the existing drawdown regime. The applicant also suggests that improvements in water quality will do more to improve the health and reproductive capability of the bass populations than would reductions or elimination of impoundment fluctuations.

d. Instream Flow Studies. In response to concerns expressed by state and federal fisheries agencies regarding the impacts of flow releases from the project dams on fisheries, the applicant conducted instream flow studies below the Gulf Island, Deer Rips and Lewiston Falls Dams. The studies included (1) the use of the Instream Flow Incremental Methodology (IFIM) to quantify habitat conditions under various flows, (2) a time series

analysis of habitat duration, and (3) a ramping study to examine the impacts of sudden decreases in flows on fish stranding.

i. IFIM Study. The IFIM study was conducted for three separate river segments that were either representative of available riverine habitat or were considered unique habitat areas. In downstream order, the studied river segments included: the 1,500-foot-long river segment immediately below the Deer Rips Dam (Deer Rips Reach); the 0.3-mile-long river segment known as Dresser's Rips, located about 2 miles below Lewiston Falls (Dresser's Rips Reach); and the 8.5-mile-long river segment immediately below Dresser's Rips (Run Reach).

Evaluation species and life stages included: American shad (adult immigration, spawning, incubation, juvenile and juvenile emigration); Atlantic salmon (adult and juvenile); brown trout (adult and juvenile); and smallmouth bass (all life stages).

Since the Deer Rips, Androscoggin 3 and Lewiston Falls stations are operated as run-of-river facilities, and since there is negligible additional drainage area beween the dams, the applicant determined that a single minimum flow recommendation would be appropriate for both projects, and that it would be necessary to try to balance the habitat requirements of all target species/life stages across the three studied river segments.

Based on the results of the IFIM study, the applicant has concluded that habitat in the Run Reach is generally limited to spawning and nursery habitat for shad, that this habitat generally increases with flow, and that the availability of more and better habitat for shad in downstream areas of the river argues against maximizing shad habitat value in the Run Reach. The applicant has also concluded that habitat values for smallmouth bass need not be considered further in establishing minimum flows, as these fish are not a management priority in the river below Gulf Island Dam. Finally, the applicant has concluded that habitat values for Atlantic salmon need not be considered further in establishing minimum flows, as there are currently no definite plans for salmon restoration in the river.

ii. Time Series Analysis. The applicant conducted a habitat duration analysis using the habitat results of the IFIM study and hourly flows releases simulated by a river operations model. The result was a series of monthly habitat duration surveys showing the percentage of time that a given amount of habitat would be equalled or exceeded, for each targeted species/life stage at each of the three river segments studied, as a result of different minimum flow operations.

Based on the results of the time series analysis, the applicant has concluded that there is little variation in overall habitat availability under various minimum flow conditions.

iii. Ramping Study. The applicant conducted an analysis of the effects on resident fish species of decreasing flows from full operating flows to various minimum flows over a specified period of time. The river segment studied was the Deer Rips Reach. The flow ramping schedule analyzed was a limear reduction from the maximum generating flow of 5,510 cfs to minimum flows of 1,100 cfs and 1,800 cfs over a 20-minute period.

Based on the results of the ramping study, the applicant has concluded that the ramping rate analyzed would limit the risk of fish becoming stranded and would not result in any significant fisheries impacts.

e. Applicant's Proposals. To protect and enhance fishery resources, the applicant proposes to undertake the following measures:

- Limit drawdowns of Gulf Island Pond to a target of one foot below normal full pond level from May 1 through June 30;
- Limit drawdowns of Gulf Island Pond to four feet from July 1 through April 30;
- Continue run-of-river operation at the Deer Rips development, with minimal impoundment fluctuations during normal project operations;
- Provide a continuous minimum flow release of 1,100 cfs or inflow, whichever is less, from the Gulf Island and Deer Rips developments; and
- Restrict the downramping of flows at the Deer Rips development from full generating flow to minimum flow to a rate no faster than linearly over 20 minutes.

f. Agency Comments. The DIF&W recommends that: the drawdown of Gulf Island Pond be limited to one foot from May 1 through July 15 to protect bass spawning and nursery habitat; a minimum flow of 1,430 cfs or inflow, if less, be provided to enhance habitat for brown trout; and the downramping of flows from the project be limited to prevent stranding of fish.

The DMR recommends that a minimum flow of 1,430 cfs or inflow, if less, be provided to enhance habitat for American shad.

The ASC comments that, should active Atlantic salmon restoration efforts be initiated above Lewiston Falls in the future, the agency will work with the dam owner and other fisheries agencies to determine if any changes in minimum flows are needed; in the meantime, the ASC defers to DIF&W's flow recommendations for resident fish. The ASC also comments that future restoration activities may require provisions for fish passage for Atlantic salmon at the project dams.

g. Discussion.

i. Water Levels. While bass spawning habitat is generally best protected by stable water levels from May 1 through June 30, there is no evidence that bass populations in Gulf Island Pond are being significantly limited by current drawdown practices. In addition, there is no evidence that extending any drawdown limitations beyond June 30 will result in any significant benefit to bass populations. Therefore, there is a reasonable assurance that the applicant's proposals to limit operational drawdowns of Gulf Island Pond and to continue run-of-river operation at the Deer Rips development will be adequate to ensure that the waters in the project impoundments will be suitable for the designated uses of habitat for fish and for fishing and that all applicable numeric and narrative water quality standards for these waters will be satisfied, subject to the other provisions of this Order.

ii. Minimum Flows. The priority management species most affected by minimum flow releases from the Gulf Island, Deer Rips and Lewiston Falls dams is brown trout. The evidence indicates that overall habitat suitability for brown trout in the Deer Rips and Dresser's Rips Reaches increases as flows increase above 1,000 cfs, but that the rate of increase in habitat suitability, especially for adult brown trout, declines as flows increase. The evidence also indicates that overall habitat for brown trout in the Deer Rips and Dresser's Rips Reaches increases by 10% between 1,000 cfs and 1,430 cfs.

Other species of concern in the river below Gulf Island Dam include smallmouth bass, American shad and Atlantic salmon. The evidence indicates that habitat value for combined life stages of bass peaks at 1,430 cfs in the Deer Rips Reach and at 1,200 cfs in the Dresser's Rips Reach. The evidence also indicates that, while habitat value for shad in the Run Reach increases with increasing flows, there is significant habitat available even at 1,000 cfs. Finally, the evidence indicates that there is no value in providing higher minimum flows for salmon until and unless there is an active salmon restoration effort underway in the river basin.

The minimum flow of 1,430 cfs recommended by the state fisheries agencies approximates the historic (i.e., unregulated) Aquatic Base Flow (median August flow) in the river at Gulf Island. It is noted that an ABF minimum flow has been previously established as the minimum flow release at the upstream Rumford Falls Project and the downstream Worumbo Project and Pejepscot Project. It is also noted that, because of headwater regulation, a minimum target flow of 1,550 cfs is maintained virtually all the time at Berlin, NH; as a result, regulated inflow to Gulf Island rarely drops below 1,430 cfs, thus enhancing the habitat value of this flow.

In view of the evidence in the record, a minimum flow of 1,430 cfs or inflow, whichever is less, from each of the project dams will improve habitat conditions for various fish species, including brown trout, smallmouth bass, and American shad, and

is necessary to ensure that the waters in the project tailrace areas will meet applicable water quality standards, subject to the other provisions of this Order. Specifically, there is a reasonable assurance that a minimum flow of 1,430 cfs or inflow, whichever is less, is necessary to ensure that the waters in the project tailrace areas will be suitable for the designated uses of habitat for fish and for fishing, and that the identified waters will be of sufficient quality to support all species of fish indigenous to these waters.

iii. Ramping. There is a reasonable assurance that the applicant's proposal to limit the downramping of flows from the Deer Rips development will be adequate to ensure that the waters in the Deer Rips tailrace area will be suitable for the designated use of habitat for fish and for fishing and that all applicable numeric and narrative water quality standards for these waters will be satisfied, subject to the other provisions of this Order.

iv. Fish Passage. The evidence indicates that there is no need at the present time for fish passage at the project dams for any resident or anadromous fish species, but that passage may be needed for Atlantic salmon in the future.

7. AQUATIC MACROINVERTEBRATES

a. Existing Resources. While the applicant did not conduct any aquatic macroinvertebrate studies in the project impoundments or tailwater areas, the available data from upstream and downstream riverine reaches of the Androscoggin River indicate that the aquatic macroinvertebrate communities in the Deer Rips impoundment and tailwater areas meet Class C standards. In addition, the available data from other similar impoundments indicates that the aquatic community in Gulf Island Pond is not being significantly affected by current drawdown operations. Finally, it is noted that the lacustrine nature of the Gulf Island impoundment precludes the use of the DEP's bioassessment model, which is designed for free-flowing waters and impoundments that are riverine in nature.

b. Applicant's Proposals. To protect and enhance aquatic macroinvertebrates, the applicant proposes to undertake the following measures:

- Limit drawdowns of Gulf Island Pond to a target of one foot below normal full pond level from May 1 through June 30;

- Limit drawdowns of Gulf Island Pond to four feet from July 1 through April 30;

- Continue run-of-river operation at the Deer Rips development, with minimal impoundment fluctuations during normal project operations; and

- Provide a continuous minimum flow release of 1,100 cfs or inflow, whichever is less, from the Gulf Island and Deer Rips developments.

c. Discussion. There is a reasonable assurance that the applicant's proposals to limit drawdowns of Gulf Island Pond, continue run-of-river operation at the Deer Rips Development, and provide a minimum flow release from the project dams will be adequate to ensure that the waters in the project impoundments and tailrace areas will be suitable for the designated use of habitat for aquatic life and that all applicable numeric and narrative water quality standards for these waters will be satisfied, subject to the other provisions of this Order.

8. FISHING AND RECREATION IN AND ON THE WATER

a. Existing Uses. Major recreational uses in the project area include bank and boat fishing, hunting, trail travel activities, and recreational boating. Continuing improvements in water quality and in the availability of game fish for angling are expected to result in growing recreational use in the future.

b. Existing Recreational Facilities. Existing recreational facilities on Gulf Island Pond include: an informal boat access site located on applicant-owned land at the end of East Waterman Road in Auburn; a commercial airport and float plane base in Turner; an informal picnic and boat access site located on applicant-owned land in Greene; a public parking and boat launch facility developed in 1989 by the prior licensee at the Turner Bridge site; three day-use and picnic sites on applicant-owned islands; and an informal day-use, picnic and fishing site on applicant-owned land at the south end of Goggins Island in Leeds.

Access to the Deer Rips impoundment is currently provided at an informal carry-in boat access site located on applicant-owned land along Switzerland Road in Lewiston.

Informal access to the river below Deer Rips Dam is available across applicant-owned land below the Deer Rips powerhouse in Auburn.

c. Applicant's Proposals. In 1989, the prior licensee developed a Comprehensive Recreational Facilities Plan which was designed to meet current and anticipated public recreational needs at CMP-owned hydro projects. Based on this plan, and after consultations with resource agencies, local interest groups, and the affected municipalities, the applicant proposes to undertake the following measures to protect and enhance recreational access and use in the project area:

- Limit normal weekly impoundment drawdowns of Gulf Island Pond to no greater than one foot from May 1 through June 30, and four feet from July 1 through April 30;

- Continue to operate the Deer Rips development as a run-of-river facility, with minimal impoundment fluctuations during normal project operations;

- Maintain the new boat launch facility at the Turner Bridge site;
- Monitor use and make improvements as needed at the Turner Bridge site;
- Maintain three existing island day use-picnic areas and three existing informal day use and boat/fishing access areas on Gulf Island Pond (Waterman Road site, Greene site, and Goggins Island site);
- Monitor use and make improvements as needed at the Goggins Island site;
- Investigate the feasibility of developing a formal carry-in boat access site to the Androscoggin River below Deer Rips;
- Investigate the feasibility of developing a formal carry-in boat access site at Waterman Road;
- Continue to allow access to the Deer Rips impoundment across applicant-owned land at the Switzerland Road site, and improve existing road-side parking at the site;
- Continue to allow access to the Deer Rips tailrace area across applicant-owned land adjacent to the Deer Rips powerhouse;
- Install and maintain a canoe portage trail at each of the project dams; and
- Develop a conservation and trail plan for all FPL-owned land within 200 feet of the high water elevation of the project impoundments.

d. Agency Comments. The Department of Conservation (DOC) comments that the State owns a 2,262 acre parcel along the West Shore of Gulf Island Pond that was purchased through the Land for Maine's Future Program with the intent to preserve the scenic, undeveloped character of the shoreline and to permit passive public recreational access to the area. The DOC also comments that the applicant's proposals for recreational access are consistent with the agency's management plans for the State parcel on Gulf Island Pond and should be adequate to meet public access needs in the project area.

e. Discussion. There is a reasonable assurance that the applicant's proposals to protect and enhance recreational access and use in the project area will be adequate to ensure that the project waters will be suitable for the designated use of recreation in and on the water, subject to the other provisions of this Order.

9. WETLANDS AND WILDLIFE RESOURCES

a. Existing Resources. The project area supports a wide variety of wildlife species, including thirty-three observed species of song birds and waterfowl (including black duck, mallard, great blue heron, loon, Canada goose, sandpiper, kingfisher, and cormorant), various reptiles and amphibians, and numerous large and small mammals (including deer, coyote, fox, otter, muskrat, bobcat, moose, mink, and beaver).

There are no federally-listed or proposed threatened or endangered species known to occur in the project area except for transient bald eagles and peregrine falcons.

b. Water Level Management Study. In response to concerns expressed by state and federal agencies regarding the impacts of fluctuating Gulf Island Pond impoundment levels on wetlands and related wildlife habitat, the applicant undertook a water level management study. The objectives of the study were (1) to survey, describe, and map the existing shoreline vegetation, and (2) to determine the potential for enhanced wetland and associated wildlife habitat development under alternate water level management regimes.

i. Wetland Identification and Mapping. The applicant conducted a shoreline survey of the Gulf Island Pond impoundment littoral zone to a depth of seven feet. The survey found 64 acres of existing emergent aquatic vegetation within the littoral zone. Almost half (38 acres) of the 64 acres of emergent aquatic vegetation are located in three protected areas of the impoundment north of the Turner Bridge, with the remaining 26 acres found in 59 small independent sites located throughout the impoundment.

ii. Wildlife Habitat Study. The applicant conducted a study using the Habitat Evaluation Procedure (HEP) to assess the impact of fluctuating water levels on wildlife habitat. Evaluation species selected for use in the HEP study were the red spotted newt, muskrat, and mink. These species were selected as indicators of different wetland habitat types that might be sensitive to fluctuating water levels.

Based on the results of the wildlife habitat study, the applicant has concluded that, while the HEP analysis predicted an increase in habitat value under stable impoundment conditions, overall habitat conditions for all three evaluation species would remain poor even under stable water levels. The applicant also concluded that the results of the HEP analysis were at odds with the survey evidence of successful habitation of the impoundment by many species (including beaver, muskrat, and loons) known to be sensitive to fluctuating water levels.

c. Applicant's Proposals. To protect and enhance wetlands and wildlife resources, the applicant proposes to undertake the following measures:

- Limit drawdowns of Gulf Island Pond to a target of one foot below normal full pond level from May 1 through June 30; and

- Limit drawdowns of Gulf Island Pond to four feet below normal full pond level from July 1 through April 30.

d. Agency Comments. The DIF&W comments that Gulf Island Pond has been identified in the agency's Wetland Inventory as having high value for waterfowl. The DIF&W recommends that the drawdown of Gulf Island Pond be limited to one foot from May 1 through July 15 to protect waterfowl reproduction.

e. Discussion. The evidence indicates that Gulf Island Pond currently provides significant habitat for a variety of wildlife species, including various waterfowl species that are generally sensitive to changing water levels. The evidence also indicates that restricting water level fluctuations during the spring and early summer growing season will protect existing wetlands and wildlife and may promote new wetland vegetation growth. However, there is insufficient evidence to conclude that extending the spring drawdown limitation beyond June 30 will result in any significant benefit to nesting waterfowl. Therefore, there is a reasonable assurance that the applicant's proposals for limiting operational drawdowns of Gulf Island Pond will be adequate to ensure that the waters of Gulf Island Pond, including the project waters contained in wetlands, will be suitable for the designated use of habitat for aquatic life, subject to the other provisions of this Order.

10. HYDROELECTRIC POWER GENERATION

a. Existing Energy Generation. The project currently generates an average of 189,720,000 kilowatt-hours of electricity annually. This is equivalent to the energy that would be produced by burning 316,200 barrels of oil or 87,915 tons of coal each year.

b. Energy Utilization. The power generated by the Gulf Island-Deer Rips Project is currently sold on the open market. All power generated by the project is fed into Central Maine Power Company’s transmission and distribution system.

c. Existing Energy Policies/Plans. The State of Maine has developed a comprehensive energy plan (Final Report of the Commission on Comprehensive Energy Planning, May 1992) with the goal of meeting the State's energy needs with reliable energy supplies at the lowest possible cost, while assuring that energy production and use are consistent with a healthy environment and a vibrant economy. Specifically, the Plan establishes the following targets for Maine's energy future:

- Reduce the State's level of dependence on oil from 50% to at least the national average of 43% by the year 2000, with further reductions to at least the 30% level by 2010;

- Increase the percentage of renewable energy resources in the State's primary energy mix from 30% to 40% by the year 2000, and to at least 50% by 2010;

- Increase statewide energy efficiency relative to 1990 levels by 25% by the year 2000 and by at least 50% by 2010; and

- Work to stabilize long-term energy prices, in balance with Maine's other energy-related goals, with a specific emphasis on enhancing Maine's competitive position relative to New England and the United States.

With respect to renewable energy, the Plan recommends that Maine actively encourage the development of wind and solar energy resources and support the continued utilization and further development, where appropriate, of the State's renewable, indigenous hydro and biomass energy resources.

d. Applicant's Proposals. The applicant's proposals to limit impoundment fluctuations and to provide minimum flow releases would result in a decrease in on-peak energy generation of about 2 million KWHrs a year.

e. Required Minimum Flow. Providing an increased minimum flow release from the project dams of 1,430 cfs, as required by this certification, instead of the 1,100 cfs proposed by the applicant, would result in an additional decrease in on-peak energy generation of about 7,515,000 KWHrs annually.

f. Discussion. The project will continue to provide cost-effective indigenous renewable electricity when operated in accordance with the operational restrictions imposed by this certification. Therefore, there is a reasonable assurance that the proposed operation of the project, as conditioned by this approval, will be adequate to ensure that the project waters will be suitable for the designated use of hydroelectric power generation.

11. COMMENTS ON DRAFT ORDER

On May 13, 2005, the DEP issued a draft Order approving a Maine Waterway Development and Conservation Act (MWDCA) permit and granting Water Quality Certification, with conditions, for the expansion and continued operation of the Gulf Island-Deer Rips Hydro Project under the terms of a new FERC license. Comments on the draft Order were invited from the applicant, state resource agencies, and other interested parties. The deadline for comments on the draft Order was 5 P.M. on June 13, 2005.

By letter dated June 2, 2005, FPL Energy withdrew its pending application for an MWDCA permit to expand generation at the Gulf Island-Deer Rips Project. Specifically, FPL Energy withdrew its proposal to replace two of the three existing turbine runners at the Gulf Island powerhouse and to thereby increase the generating and hydraulic capacities of the project. As a consequence, an MWDCA permit would no longer be required at this time for the project.

The DEP determined that, as a result of FPL Energy's June 2, 2005 letter, the draft Order should be substantially revised to reflect FPL Energy's withdrawal of its application for an MWDCA permit.

By letter dated June 15, 2005, the DEP issued a revised draft Order granting Water Quality Certification, with conditions, for the continued operation of the Gulf Island-Deer Rips Project under the terms of a new FERC license. The only revisions made to the May 13, 2005 draft Order involved removing all references to the MWDCA and its criteria and to the proposed expansion of the project. Comments on the revised draft Order were invited from the applicant, state resource agencies, and other interested parties. The deadline for comments on the revised draft Order was 5 P.M. on June 24, 2005.

Comments on the draft Order and/or revised draft Order were received from the applicant (FPL Energy), the Conservation Law Foundation (CLF), the Natural Resources Council of Maine (NRCM), Rumford Paper Company (RPC), and the Rumford Pulp and Paperworkers' Resource Council.

Procedural, legal and factual issues raised in the comments received on the draft Order and the revised draft Order are discussed below.

a. Comment Deadline. FPL Energy contends that it has requested, but not yet received, specific information from the DEP relative to the DEP's water quality model and TMDL for the Androscoggin River. FPL Energy further contends that it has requested that the DEP conduct, and provide the data from, additional water quality model runs for Gulf Island Pond, but that no additional model runs have been conducted. Finally, FPL Energy contends that it has requested that the DEP re-issue the draft Water Quality Certification (WQC) for an additional 30-day comment period after eliminating any terms and conditions relating to MWDCA approval for the previously-proposed expansion of the project that was subsequently withdrawn, but that this request was denied. Based on these contentions, FPL Energy requests that it be allowed to provide additional comments on the draft WQC until at least 30 days after the requested information has been produced and the DEP issues a new draft WQC.

   In response, the DEP has been fully responsive to FPL Energy's June 3, 2005 request for public records pursuant to the Maine Freedom of Access Act, 1 MRSA Sections 401-410. In addition, while the DEP believes it has conducted sufficient monitoring and modeling to fully evaluate current and predicted water quality conditions in Gulf Island Pond[1], the DEP has made its water quality model and all input parameters available to FPL Energy and other interested parties and has repeatedly informed FPL Energy and other interested parties that the DEP would evaluate any alternative model runs that any party might produce. Finally, as noted above, the DEP did issue a revised draft WQC for additional comment by FPL Energy.

[1] The DEP's water quality monitoring and modeling efforts on Gulf Island Pond hjave been on-going for over 20 yearsm and are fully described in section 4 of this certification.

The DEP notes that, pursuant to the DEP's Chapter 2 Rules Concerning the Processing of Applications and Other Administrative Matters, when an applicant, intervenor or other interested person submits a written request for a draft license decision, that draft decision must be mailed to the requester, and made available at the Augusta Office and appropriate regional offices of the Department, at least 5 working days prior to the Commissioner taking final action on the application. As noted above, FPL Energy was given 30 calendar days (20 working days) to comment on the draft WQC and 9 calendar days (7 working days) to comment on the revised draft WQC. These comment periods are in full compliance with the DEP's Chapter 2 Rules.

b. Need for Certification. FPL Energy asserts that it is not required to obtain a Section 401 water quality certification for the Gulf Island-Deer Rips Project and that the DEP has no legal authority to issue the proposed draft WQC. Specifically, FPL Energy contends that the recent decision of the Maine Law Court in S.D. Warren v. Board of Environmental Protection was wrongly decided and is clearly distinguishable from the facts in the present proceeding. FPL further contends that the presence of Gulf Island Dam does not lead in and of itself to a failure of the upstream impoundment to meet water quality standards. Finally, FPL Energy contends that the DEP has no legal authority to look at the upstream impact of an activity, except for hydropower projects built after the enactment of the State's antidegradation policy, and that earlier impoundments such as Gulf Island Pond were intended to be grandfathered.

In response, in S.D. Warren v. Board of Environmental Protection, 565 A.2d. 210 (Me. 2005)[2], the Maine Supreme Judicial Court held that any discharge from a dam, whether polluting or not, is a "discharge" for purposes of Section 401 of the Clean Water Act, and that, as a consequence, Section 401 water quality certification is required in conjunction with the proposed federal relicensing of S.D. Warren's five existing hydropower projects on the Presumpscot River. The Court further held that, because water quality standards are not presently being met on the Presumpscot River, the DEP may impose any conditions necessary to ensure compliance with those standards. Among the conditions imposed by the DEP and upheld by the Court were conditions requiring that S.D. Warren take measures to meet dissolved oxygen standards and the designated use of recreation in and on the water in the impoundments created by the project dams.

The relevant facts in the S.D. Warren case are indistinguishable from the facts in the present proceeding. Specifically, (1) the Gulf Island-Deer Rips Project is an existing hydropower project that is currently pending for federal relicensing, (2) dissolved oxygen standards and the designated use of recreation in and on the water are not presently being met in Gulf Island Pond, and (3) the conditions imposed by the DEP in this WQC are appropriate and necessary to mitigate the impact of Gulf Island Dam on dissolved oxygen

[2] The S.D. Warren decision was issued February 15, 2005 and is currently pending on a petition for certiorari to the U.S. Supreme Court.

levels in Gulf Island Pond and on the designated use of recreation in and on the water in Gulf Island Pond.

Therefore, the DEP concludes concludes that it has authority to issue this water quality certification with such conditions as are necessary to provide a reasonable assurance that the continued operation of the Gulf Island-Deer Rips Project will not violate applicable water quality standards in those waters affected by the project.

FPL Energy's current argument that Gulf Island Dam does not cause or contribute to the failure of Gulf Island Pond to meet water quality standards is novel and at odds with the record. Specifically, the DEP notes that, to protect and enhance dissolved oxygen, FPL Energy proposes to continue to participate in the partnership with upstream paper companies to inject oxygen into Gulf Island Pond. The DEP further notes that the Gulf Island Pond Oxygenation Project partnership agreement, signed by FPL Energy's predecessor-in-interest, Central Maine Power Company, states in part that "as a condition of obtaining certification from DEP under Section 401 of the Clean Water Act concerning renewal of CMP's Federal Energy Regulatory Commission ('FERC') license to operate the Gulf Island-Deer Rips Hydroelectric Project and as a condition of obtaining from FERC a renewal of such license, CMP will also be required to take action to increase dissolved oxygen in Gulf Island Pond."[3] These facts suggest that both CMP and FPL Energy have previously acknowledged that Gulf Island Dam does cause or contribute to the failure of Gulf Island Pond to meet water quality standards and understood that measures to mitigate that impact would be required.

Finally, FPL Energy's argument that Gulf Island Pond is somehow "grandfathered" from meeting state water quality standards, including the state's antidegradation policy, has no basis in law. The state's antidegradation policy clearly provides that the DEP may only issue a wastewater discharge license pursuant to state law or approve water quality certification pursuant to federal law if the standards of classification of the water body are met, except that the DEP may issue a wastewater discharge license or approve water quality certification for a project affecting a water body in which the standards of classification are not met if the project does not cause or contribute to the failure of the water body to meet the standards of classification. 38 MRSA Section 464(4)(F)(3). No water bodies are "grandfathered" from meeting water quality standards, and no projects—whether paper mills or dams—are "grandfathered" from appropriate regulation if determined to be causing or contributing to the failure of any water body to meet water quality standards.

c. Equal Treatment. FPL Energy contends that the DEP's requirement that FPL Energy be responsible for mitigating the impact of upstream non-point sources of pollution and legacy waste on dissolved oxygen levels in Gulf Island Pond is inconsistent with the treatment given to other dams, and thus violates the equal protection and due process clauses of the U.S. and Maine constitutions.

[3] Gulf Island Pond Oxygenation Project Agreement of General Partnership, dated January 9, 1991.

In response, the DEP is not requiring that FPL Energy mitigate the impacts of current non-point source pollution or of historic "legacy" pollution and is not treating FPL Energy any differently than other dam owners, except as justified by the unique circumstances of this case. The DEP has conducted its water quality modeling for Gulf Island Pond under assumed low flow conditions, when non-point source pollution from other than natural sources has a de minimis impact on Gulf Island Pond. In addition, the water quality model runs made with upstream point sources at zero discharge levels and Gulf Island Dam in place were made with sediment oxygen demand reduced so that legacy pollution is not included in calculating the dissolved oxygen deficit due to the presence of the dam.[4] Finally, the DEP's modeling on other rivers (e.g., the Presumpscot[5]) has calculated dissolved oxygen levels under dry weather conditions and, based on this modeling, the DEP has required that other dam owners (e.g., S.D. Warren[6]) mitigate the impact of their dams on dissolved oxygen levels in project impoundments. Therefore, since the DEP considered the same factors here that it has in other similar water quality certification proceedings, and based on those factors attached conditions to address the particular circumstances presented here, FPL Energy's due process and equal protection arguments are without merit.

d. GIPOP Agreement. FPL Energy contends that the existing GIPOP Agreement controls the allocation for any increased oxygenation of the Gulf Island Pond that may be required and that the DEP has improperly injected itself into contractual issues between the GIPOP Partners. FPL Energy requests that the final WQC expressly state that the DEP takes no position concerning the applicability of the existing GIPOP Agreement to any additional oxygenation requirements.

The requirement that additional oxygen be injected into Gulf Island Pond is a proper exercise of the DEP's regulatory authority and responsibility under State law and the Clean Water Act. By imposing this requirement, the DEP is appropriately holding all parties responsible for taking sufficient measures to mitigate their impact (in this case of this certification, the impact of Gulf Island Dam) on the failure of Gulf Island Pond to meet applicable dissolved oxygen standards, as set forth in Maine's water quality standards law. As stated by EPA in its July 18, 2005 notification of approval of the DEP's TMDL for Gulf Island Pond, "it is the State's prerogative to determine how oxygenation should be required, and from whom, consistent with its permitting and licensing authorities." The DEP agrees.

[4] These issues are addressed in more detail in the DEP's Responses to Comments, Androscoggin River TMDL (April 2005).
[5] See "Presumpscot River Waste Load Allocation Final Report," DEP (November 1995) and "Supplemental Report to Waste Load Allocation," DEP (March 1998).
[6] See Department Order #L-19713-33-E-N, Findings of Fact and Order, In the Matter of S.D. Warren Company, April 30, 2003 (Presumpscot River Hydro Projects).

Moreover, this requirement is not contrary to the terms of the GIPOP Agreement on its face. The agreement covers the construction, operation and maintenance of an oxygenation facility at or near Upper Narrows designed to inject not less than 27,000 lbs/day into Gulf Island Pond. The agreement does not speak to the relative obligation of any given party with regard to any additional oxygenation requirements imposed by future regulatory actions. Even if it did, this certification does not prescribe how each party will provide the total additional oxygen required at Upper and Lower Narrows. In addition, each party individually or the GIPOP Partners collectively is free to propose alternative measures (e.g. further reducing pollutant discharges into Gulf Island Pond or reducing time-of-travel or increasing vertical mixing within Gulf Island Pond) to meet dissolved oxygen standards. To the extent that FPL Energy argues that its participation in a private partnership to increase dissolved oxygen levels in Gulf Island Pond somehow precludes state regulators from requiring measures beyond those contemplated by that partnership, the DEP flatly rejects that argument.

e. TMDL and Water Quality Model. FPL Energy contends that the conclusions in the draft WQC are derived from the May 2005 Androscoggin River TMDL and that the water quality modeling on which the TMDL is based contains significant deficiencies. Specifically, FPL Energy contends that the DEP modeling (1) does not properly model the hydrodynamic characteristics of Gulf Island Pond, (2) underestimates the impact of point source phosphorus discharges on sediment oxygen demand in Gulf Island Pond, (3) uses inaccurate dispersive mixing coefficients in predicting oxygen levels in the deeper portions of Gulf Island Pond, and (4) uses inappropriate water temperatures in certain model runs. RPC contends that the DEP modeling underestimates the impact of non-point sources on sediment oxygen demand in Gulf Island Pond.

In response, the DEP's water quality model for Gulf Island Pond, which was developed with EPA support and oversight, is based on reasonable assumptions that are validated by over 20 years of monitoring data collected by the DEP, the current paper mill dischargers and FPL Energy and their predecessors under EPA quality assurance protocols. The comments of both FPL Energy and RPC on the model and the TMDL have been previously addressed in detail by the DEP[7], and the DEP's TMDL for Gulf Island Pond has been approved by EPA[8]. Therefore, no changes to the model are warranted at this time. As indicated in the approved TMDL, the DEP will, of course, continue to evaluate the accuracy of the model based on future water quality monitoring data and will revise and update the model as appropriate based on that data.

[7] See the DEP's Responses to Comments, Androscoggin River TMDL (April 2005).

[8] In the documentation attached to its July 18, 2005 notification of approval of the DEP's TMDL for Gulf Island Pond, EPA specifically concluded that "ME DEP used a reasonable approach to establish the relationships between pollutant loadings and water quality" and that, "[because] modeling shows that pollution control alone would not be sufficient to enable [Gulf Island Pond] to attain water quality standards,…reliance on instream aerators to supplement pollution controls is a reasonable approach."

f. Reaeration and Mixing. RPC contends that the oxygen injection requirements contained in the WQC for Gulf Island Dam need to fully compensate for the reduction in natural reaeration caused by the dam. RPC further contends that the draft WQC fails to address or to discuss any investigations of correcting the low mixing above the thermocline in Gulf Island Pond. Finally, RPC contends that there is currently insufficient information to determine that the deep hole upstream from Gulf Island Dam should be exempt from dissolved oxygen requirements.

In response, there is no legal requirement that FPL Energy, or any other dam owner, replace or otherwise compensate in full for the reduction in natural reaeration caused by a dam. Likewise, there is no legal requirement that FPL Energy either investigate or correct the reduced vertical mixing caused by Gulf Island Dam. The DEP has appropriately determined FPL Energy's obligations by evaluating the impact of Gulf Island Dam on the ability of the river impounded by the dam to meet water quality standards in the absence of upstream point source discharges (such as from RPC's Rumford paper mill). In other words, FPL Energy's legal obligation is not measured by reference to natural dissolved oxygen levels in this segment of the river, but rather is measured by reference to those dissolved oxygen levels necessary to meet applicable water quality standards. FPL Energy is responsible for any violation of standards caused by the dam. Any remaining water quality problems become the responsibility of the upstream dischargers (including RPC's Rumford paper mill).

The DEP notes that the opportunity to study the impact of the operation of Gulf Island Dam on algae blooms is addressed in recently passed legislation.[9]

Finally, the DEP has copious monitoring data clearly establishing that mixing is inhibited in that portion of Gulf Island Pond below a depth of 60 feet due to the presence of a natural topographical feature (in this case, a natural deep hole). As a result, pursuant to 38 MRSA Section 464(13), compliance with dissolved oxygen standards is not measured within this portion of the pond.[10]

g. Schedule for Issuance. RPC contends that the oxygen injection allocations in the wastewater licenses for the Fraser, RPC, and IP paper mills and the water quality certification for Gulf Island Dam constitute a package that, when combined, meets the TMDL for Gulf Island Pond and that these approvals should be issued contemporaneously.

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[9] P.L. 2005 Chapter 409 requires that the DEP supervise a study that evaluates the operation of the dam on Gulf Island Pond with regard to its impact on algae blooms. Hydrodynamic modeling of Gulf Island Pond and the dam must be included in the study as well as an analysis of the dam's operation to determine the feasibility and practicability of forecasting algae blooms and modifying the dam's operation to mitigate the likelihood of the occurrence of algae blooms.

[10] The DEP notes that, if compliance with DO standards were to be measured at depths below 60 feet in Gulf Island Pond, the oxygenation requirements imposed on both FPL Energy and the upstream dischargers (including RPC) would increase. It is not clear why RPC would argue for such an outcome.

In response, it has been and remains the DEP's intention to issue new waste discharge licenses for all point source discharges located in Maine that affect Gulf Island Pond and to issue a water quality certification for the Gulf Island-Deer Rips Hydro Project on or about the same time. However, the discharge from the Fraser paper mill originates in New Hampshire and thus is not subject to licensing by DEP. The DEP is working closely with EPA and the State of New Hampshire to ensure that a new federal discharge permit for the Fraser mill is issued in a timely manner.

h. Dissolved Oxygen Standard. NRCM contends that the oxygenation requirements described in the draft WQC are based on an illegal Class C 30-day average dissolved oxygen standard of 6.5 ppm at 22 degrees Celsius. Specifically, NRCM contends that compliance with the 30-day average dissolved oxygen of 6.5 ppm should be based on an ambient monthly average temperature for the Androscoggin River of 24 degrees Celsius, as required by EPA guidance, and that the use of any dissolved oxygen compliance temperature of less than 24 degrees Celsius constitutes a change in water quality standards that must be approved by EPA.

In response, the DEP appropriately based its oxygenation requirements on meeting a 30-day average dissolved oxygen standard of 6.5 ppm at a water temperature of 22 degrees Celsius. This DO level is needed to support the narrative Class C standard that Class C waters shall be of sufficient quality to support all species of fish indigenous to the receiving waters (in this case, cold water salmonids) and maintain the structure and function of the resident biological community. The DEP determines the ambient water temperatures utilized in its modeling efforts on a case-by-case basis given the geographic location and hydraulic characteristics of the waterbody being modeled. While 24 degrees Celsius is reasonably considered the upper limit of salmonid growth, the record demonstrates that using 22 degrees Celsius as an upper limit captures the majority of the time during which salmonids would be growing and thus is a reasonable interpretation of the applicable narrative standard.[11]

The DEP notes that, in approving the DEP's TMDL for Gulf Island Pond, which was based on meeting a 30-day average DO standard at 22 degrees Celsius, EPA stated:

"With respect to the [Gulf Island Pond] DO narrative (monthly average) TMDL target, we recognize that some commenters objected to the State's use of $22^{o}$ C rather than ambient temperatures, particularly in light of DEP's past practice. However, states have some discretion in interpreting their narrative water quality standards, and in this case Maine explained that $22^{o}$ C is very close to the upper range of the temperature at which growth occurs, and that using this temperature would be consistent with the narrative water quality standard which allows for some change in aquatic life as long as all

[11] This issue is addressed in more detail in the DEP's Responses to Comments, Androscoggin River TMDL (April 2005).

indigenous fish are supported and the structure and function of the resident biological community is maintained."[12]

Therefore, the DEP maintains the position that the use of 22 degress Celsius to develop oxygenation requirements in this certification action is protective of indigenous cold water fish species and will support the structure and function of the resident biological community.

i. Reopeners for Oxygen Requirements. RPC contends that the DEP must add language rendering additional oxygen injection requirements as null and void if any party receives less stringent requirements through negotiation or appeal. RPC further contends that, at a minimum, the DEP must include an automatic reopener that applies to all parties should any party receive less stringent oxygen requirements. Finally, RPC contends that the DEP must provide an opportunity for regulated entities to request a reconsideration of alternative compliance depths other than the thermocline as part of this reopener.

In response, the DEP's approach to bringing about attainment of water quality standards in Gulf Island Pond is simply to hold each party responsible for its proportionate impact on the failure of the water body to meet applicable dissolved oxygen standards. The DEP does not believe it is necessary or appropriate to add language that would allow for the automatic re-allocation or removal of additional oxygenation requirements based on procedural events that may or may not occur in the future. The DEP will, of course, act in accordance with any decision made in response to an administrative or judicial appeal of this certification or any wastewater discharge license affecting the water quality of Gulf Island Pond.

The DEP notes that, pursuant to condition 5(G) of this certification, FPL Energy is responsible for taking such actions as are needed to meet Class C DO standards in Gulf Island Pond, insofar as Gulf Island Dam causes or contributes to a violation of these standards, and that, based on the results of follow-up monitoring, the DEP has specifically reserved its authority to reopen and modify the terms of this certification to require reasonable changes in the oxygen injection system(s) and/or oxygen injection rates, or changes in other equivalent measures, as may be deemed necessary to meet dissolved oxygen standards in Gulf Island Pond.

The DEP further notes that, pursuant to 38 MRSA Section 464(13), where mixing is inhibited due to thermal stratification in an existing riverine impoundment, compliance with numeric dissolved oxygen criteria may not be measured below the higher of: (1) the

[12] See the documentation attached to EPA's July 18, 2005 notification of approval of the DEP's TMDL for Gulf Island Pond. In a footnote, EPA also stated: "The commenters also asserted that DEP's change in determining how the 6.5 ppm DO [standard] would be implemented constitutes a water quality standards change that required EPA review and approval before it can be implemented. We agree that in some circumstances, a new interpretation of a water quality standard may constitute a revised standard subject to EPA review and approval, However, we do not believe that the State's action here is such a circumstance."

point of thermal stratification when such stratification occurs; or (2) the point proposed by the DEP as an alternate depth for a specific riverine impoundment based on all factors included in section 466, subsection 11-A and for which a use attainability analysis is conducted if required by the EPA. As the approved TMDL demonstrates, it is the DEP's position that water quality standards can in fact be met to the thermocline in Gulf Island Pond. As a consequence, an alternative compliance point for dissolved oxygen standards is not needed.

j. Additional Instream Aeration. NRCM contends that the use of additional instream aeration to meet water quality standards in Gulf Island Pond is in violation of DEP and EPA regulations and is therefore illegal. Specifically, NRCM contends that, pursuant to DEP's Chapter 524 Rules and EPA's 40 CFR 125.3(f) regulation, the use of non-treatment techniques, such as instream aerators, may be considered as a method of achieving water quality standards on a case-by-case basis only when the discharger demonstrates that such a technique is the preferred environmental and economic method to achieve standards after consideration of alternatives such as advanced waste treatment and other available methods. NRCM further contends that the demonstration provided to date by the upstream paper companies is inadequate in that the DEP has not determined at what level reductions in effluent discharges cease to be effective in raising dissolved oxygen levels in Gulf Island Pond. RPC contends that, in lieu of attainment of water quality standards through dam removal, FPL Energy must submit a 125.3(f) demonstration justifying in-stream treatment.

In response, the "preferred environmental and economic method" test contained in DEP's and EPA's regulations only applies to the use of non-treatment techniques in the context of the establishment of treatment requirements and effluent limits for a point source discharge that is subject to DEP approval under Maine's waste discharge laws and the National Pollutant Discharge Elimination System provisions of the Clean Water Act. Therefore, this test does not apply to the use of additional instream aeration to mitigate the impact of Gulf Island Dam, which is subject to review under the water quality certification provisions of the Clean Water Act. Furthermore, the additional oxygenation required by this certification is intended to bring Gulf Island Pond into compliance with dissolved oxygen standards in the absence of any upstream point source discharges of pollutants. Thus, the additional oxygenation being required of FPL Energy is not a substitute for additional treatment of point source discharges.[13]

k. Algae Blooms and Phosphorus Removal. FPL Energy objects to the proposed condition in the draft WQC requiring that the company contribute $100,000 toward the capitol cost

[13] The DEP notes that, in the documentation attached to its July 18, 2005 notification of approval of the DEP's TMDL for Gulf Island Pond, EPA specifically stated that it was not endorsing the § 125.3(f) demonstration provided by the paper mills currently discharging to the Androscoggin River above Gulf Island Pond. However, EPA also stated that "…in this case modeling shows that pollution controls alone would not be sufficient to enable [Gulf Island Pond] to attain water quality standards. Therefore, reliance on instream aerators to supplement pollution controls is a reasonable approach."

of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plant (WWTP) effluent. Specifically, FPL Energy contends that the DEP does not have the power to impose upon the company the remediation costs for a point source, and that the condition requiring that FPL Energy pay these costs is not supported by the evidence on the record. CLF contends that the WQC should specify that FPL Energy's contribution towards the Livermore Falls WWTP must occur upon issuance so that Livermore Falls can meet its one year schedule of compliance for phosphorus removal. RPC contends that DEP has underestimated FPL Energy's responsibility for algae blooms, that FPL Energy should be fully responsible on an on-going basis for the continued impact of the dam on algae blooms, and that the WQC should contain a re-opener to address the results of the algae mitigation study provided for in recently passed legislation.

In response to FPL Energy's objection, the DEP's modeling has determined that, even in the absence of upstream point source discharges, the presence of Gulf Island Dam causes an increase in chlorophyll-a levels (used as a measure of algae) in Gulf Island Pond and that, as a consequence, the dam causes or contributes to the existence of algae blooms in the pond that violate water quality standards. The DEP's modeling has also determined that these algae blooms will be eliminated through a reduction in the point-source discharges of phosphorus to the pond. Based on this, the DEP is requiring that FPL Energy take specific measures to aid in the removal of phosphorus from the Livermore Falls municipal WWTP effluent, or take other equivalent measures as may be approved by the Department, in order to mitigate the impact of Gulf Island Dam on the designated use of recreation in and on the water in Gulf Island Pond. The capitol contribution to the Livermore Falls municipal WWTP is established here as the default option based on the DEP's belief that this is the most cost-effective and efficient way for FPL Energy to reduce algae blooms in Gulf Island Pond. However, if FPL Energy objects to paying for phosphorus removal from the Livermore Falls WWTP, it may propose alternative measures to reduce algae blooms (e.g., reducing the time-of-travel or increasing the vertical mixing within Gulf Island Pond). The DEP, acting in its regulatory capacity, is simply holding FPL Energy responsible for taking sufficient measures to mitigate the impact of its dam on the failure of Gulf Island Pond to be suitable for the designated use of recreation in and on the water.

In response to CLF's contention, the DEP's draft MEPDES permit for the Livermore Falls WWTP stipulates that a new effluent limitation for ortho-phosphorus will become effective on June 1, 2006. It is reasonable that FPL Energy's contribution to the cost of the required phosphorus removal equipment at the Livermore Falls WWTP (if this is the measure chosen by FPL Energy to meet its obligations to mitigate the impact of the dam on algae blooms in Gulf Island Pond) be made by this date. Therefore, the compliance schedules in Condition 6 of the draft WQC have been modified accordingly.

In response to RPC's contention, FPL Energy's obligations to mitigate the impact of Gulf Island Pond on algae blooms, as set forth in this certification, are both appropriate and

reasonable. The DEP notes that no other party, including the Town of Livermore Falls, has raised any objections to the requirement that FPL Energy take specific measures to aid in the removal of phosphorus from the Livermore Falls municipal WWTP effluent, or take other equivalent measures as may be approved by the Department, as set forth in the draft WQC. In addition, the DEP notes that, pursuant to 38 MRSA Section 341-D(3), after written notice and opportunity for hearing, the Board may modify any water quality certification whenever it finds that, among other things, the approved activity poses a threat to the environment or there has been a change in any condition or circumstance that requires modification of the terms of the certification. Thus, the DEP already has statutory authority to re-open this WQC to impose new conditions regarding mitigation for the impact of Gulf Island Dam on algae blooms as may be warranted in the future based on the results of the study provided for in P.L. 2005 Chapter 409.[14] However, the DEP agrees that a project-specific reopener is appropriate in this instance, and Condition 6 of the draft WQC has been modified accordingly.

l. Minimum Flow. FPL Energy contends that the minimum flow requirement of 1,430 cfs contained in the draft WQC is unnecessarily high and cannot be justified based on the application of site-specific fishery habitat criteria and current fishery management. FPL Energy requests that the draft WQC be modified to require a minimum flow of 1,100 cfs, as proposed in the application and supported by the evidence.

In response, the minimum flow requirement of 1,430 cfs is justified and is fully supported by the evidence in the record. As noted in the Findings of Fact above (see Section 6), based on the instream flow study conducted by the applicant, the overall habitat value for each of the target fisheries species (American shad, brown trout, and smallmouth bass) in the two riverine reaches most affected by minimum flow releases from the Gulf Island and Deer Rips developments (Deer Rips and Dresser's Rips) is greater at a flow of 1,430 cfs than at the flow of 1,100 cfs proposed by the applicant. Based on this evidence, both DIF&W and DMR have recommended that a minimum flow of 1,430 cfs or inflow, if less, be provided from the project dams, and DEP has found that a minimum flow of 1,430 cfs or inflow, whichever is less, is necessary to ensure that the waters in the project tailrace areas will be suitable for the designated uses of habitat for fish and for fishing and that the identified waters will be of sufficient quality to support all species of fish indigenous to these waters. FPL Energy has not presented any persuasive arguments or supplemental evidence that calls into question these findings.[15]

[14] The DEP notes that, pursuant to P.L. 2005 Chapter 409, the study evaluating the impact of Gulf Island Dam on algae blooms must be voluntarily funded by those wastewater dischargers that choose to participate, and FPL Energy will not be required to implement any alterations to the operation of Gulf Island Dam in lieu of discharger reductions unless the dischargers compensate the dam owner for such alterations. The DEP encourages RPC to assist in funding the dam study and to consider compensating FPL Energy for any alterations to the operation of the dam that would off-set reductions in phosphorus discharges from RPC's Rumford paper mill.

[15] The DEP further notes that, in its July 1996 Final Environmental Impact Statement for the proposed relicensing of the Gulf Island-Deer Rips Hydro Project, the FERC staff, based on its independent review and evaluation, has recommended that the project be relicensed with minimum flows of 1,400 cfs from December 1 to April 30 and 1,700 cfs from May 1 to November 30, and has stated that such flows would provide moderately to significantly

m. Fish Passage. FPL Energy contends that the condition of the draft WQC in which the DEP reserves the authority to require the installation of fish passage facilities at the project should be removed because (1) the DEP does not have statutory authority to require fishways, (2) fishways are not necessary for the project to meet the statutory water quality standards, (3) there is no biological or fisheries management justification for fishways at the project, and (4) there is nothing in the administrative records justifying fish passage at the project or the reservation of authority to do so in the future. NRCM asks whether it will be possible to reopen the WQC and the FERC license to require fish passage if it becomes necessary.

In response, the Maine Supreme Judicial Court has held that, in approving Section 401 water quality certification for an existing hydropower project, the DEP may impose any conditions necessary to ensure compliance with applicable water quality standards, including conditions requiring the installation of fishways.[16] The evidence in the record indicates that the historic range of Atlantic salmon in the Androscoggin River was to Rumford, many miles upstream from Gulf Island Dam. The evidence in the record also indicates that the Atlantic Salmon Commission plans to eventually restore Atlantic salmon to the Androscoggin River, but has yet to develop a specific timetable for restoration. Finally, the evidence in the record indicates that the Gulf Island and Deer Rips dam currently present barriers to the upstream and downstream migration of Atlantic salmon.

The DEP therefore concludes that it has the authority and sufficient evidence in the record to justify issuing this water quality certification with a condition requiring that the applicant install such fish passage facilities at the project dams as may be required in the future by the DEP, after notice to the applicant and opportunity for public hearing, to allow the migration of Atlantic salmon into and out of the Androscoggin River above the project dams.

The DEP notes that, pursuant to Section 401(d) of the Clean Water Act, any water quality certification shall become a condition on any federal license or permit subject to the provisions of Section 401. Therefore, the condition of this certification requiring the installation of such fish passage facilities at the project dams as may be required in the future by the DEP will become a condition of any new license issued by FERC for the Gulf Island-Deer Rips Project and, as such, will be enforceable by FERC.

n. Eel Passage. CLF contends that the WQC must be modified to include conditions requiring FPL Energy to monitor upstream and downstream migration. CLF also contends that the WQC must include re-opener clauses that allow the DEP to establish conditions to safeguard eel habitat, including upstream eel passage facilities, downstream

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enhanced instream flows during anadromous fish migration periods and moderately improved flows for resident brown trout and smallmouth bass (see pages 5-27 through 5-36). This FEIS is part of the DEP's record.

[16] See S.D. Warren v. Board of Environmental Protection, 565 A.2d. 210 (Me. 2005).

eel passage facilities, and temporary nighttime shutdowns if necessary to prevent killing or maiming of eels during the fall seasonal downstream migration. Finally, CLF contends that the WQC must be modified to allow any party to petition DEP or FERC to reopen the WQC to establish conditions to safeguard eel habitat.

In response, there is no evidence in the record regarding the impact of the project on the passage of American eels, nor has DMR recommended that eel passage be monitored at the project dams or that eel passage facilities be installed at the project dams.[17] Therefore, the DEP has no basis for including any conditions in the WQC addressing eels.

The DEP notes that, pursuant to 38 MRSA Section 341-D(3), after written notice and opportunity for hearing, the Board may modify any water quality certification whenever it finds that, among other things, the approved activity poses a threat to the environment or there has been a change in any condition or circumstance that requires modification of the terms of the certification. Thus, the DEP already has statutory authority to re-open this WQC to impose new conditions regarding eels as may be warranted in the future.

The DEP also notes that, under the Federal Power Act, FERC shall require the construction, maintenance and operation by a licensee of such fishways as the Secretaries of the U.S. Departments of Commerce and of the Interior may prescribe. Thus, federal agencies already have statutory authority to require eel passage facilities at the Gulf Island-Deer Rips Project through the FERC license.

o. Miscellaneous. In response to various comments and additional legal and technical analysis, the DEP has made a number of minor editorial corrections to the revised draft Order issued on June 15, 2005.

Based on the above Findings of Fact, and the evidence contained in the application and supporting documents, and subject to the conditions listed below, the Department CONCLUDES that the continued operation of the Gulf Island-Deer Rips Hydro Project, as described above, will result in all waters affected by the project being suitable for all designated uses and meeting all other applicable water quality standards, provided that:

1. Water levels in Gulf Island Pond are maintained within one foot of full pond level from May 1 through June 30 and within 4 feet of full pond from July 1 through April 30;

2. Water levels in the Deer Rips impoundment are maintained within one foot of full pond;

3. A minimum flow of 1,430 cfs or inflow, whichever is less, is maintained at all times from the Gulf Island and Deer Rips developments;

[17] Likewise, FERC's July 1996 Final Environmental Impact Statement for the relicensing of the Gulf Island-Deer Rips Hydro Project contains no discussion regarding eel habitat or eel passage.

4. The downramping of flows from the Deer Rips development from full generating flow to minimum flow is restricted to a rate no faster than linearly over 20 minutes;

5. Upstream and downstream fish passage facilities are installed and operated at the project dams as deemed necessary by the Department to facilitate the restoration of Atlantic salmon to the watershed above the dams;

6. FPL Energy injects up to 14,700 pounds per day of oxygen at Upper Narrows and up to 55,900 pounds per day of oxygen at Lower Narrows, at an oxygen transfer efficiency of 33%, or takes other equivalent measures as may be approved by the Department, in order to mitigate the impact of Gulf Island Dam on dissolved oxygen levels in Gulf Island Pond;

7. FPL Energy contributes $100,000 towards the capitol cost of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plant effluent, or takes other equivalent measures as may be approved by the Department, in order to mitigate the impact of Gulf Island Dam on the designated use of recreation in and on the water in Gulf Island Pond; and

8. Public recreational access and use facilities are developed and maintained as proposed.

THEREFORE, the Department APPROVES the application of FPL ENERGY MAINE HYDRO LLC and GRANTS certification that there is a reasonable assurance that the continued operation of the GULF ISLAND-DEER RIPS HYDRO PROJECT, as described above, will not violate applicable water quality standards, SUBJECT TO THE FOLLOWING CONDITIONS:

1. WATER LEVELS

   A. Except as temporarily modified by (1) approved maintenance activities, (2) extreme hydrologic conditions, as define below, (3) emergency electrical system conditions, as defined below, or (4) agreement between the applicant and appropriate state and/or federal agencies, water levels in the project impoundments shall be maintained as follows:
      - In Gulf Island Pond, within one foot of full pond level from May 1 through June 30 and within four feet of full pond from July 1 through April 30 annually; and
      - In the Deer Rips impoundment, within one foot of full pond under run-of-river operation at all times.

   B. “Extreme Hydrologic Conditions” means the occurrence of events beyond the Licensee’s control such as, but not limited to, abnormal precipitation, extreme runoff, flood conditions, ice conditions or other hydrologic conditions such that the operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

C. “Emergency Electrical System Conditions” means operating emergencies beyond the applicant's control which require changes in flow regimes to eliminate such emergencies which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating conditions, generating unit operation or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authorities.

D. The applicant shall, within 6 months of issuance of a New License for the project by FERC or upon such other schedule as established by FERC, submit plans for providing and monitoring the impoundment water levels required by Part A of this condition. These plans shall be reviewed by and must receive approval of the DEP Bureau of Land and Water Quality.

2. MINIMUM FLOWS

A. Except as temporarily modified by (1) approved maintenance activities, (2) extreme hydrologic conditions, as define below, (3) emergency electrical system conditions, as defined below, or (4) agreement between the applicant and appropriate state and/or federal agencies, an instantaneous minimum flow of 1,430 cfs or inflow, whichever is less, shall be released from the project dams at all times.

B. “Extreme Hydrologic Conditions” means the occurrence of events beyond the Licensee’s control such as, but not limited to, abnormal precipitation, extreme runoff, flood conditions, ice conditions or other hydrologic conditions such that the operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

C. “Emergency Electrical System Conditions” means operating emergencies beyond the applicant's control which require changes in flow regimes to eliminate such emergencies which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating conditions, generating unit operation or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authorities.

D. The applicant shall, within 6 months of issuance of a New License for the project by FERC or upon such other schedule as established by FERC, submit plans for providing and monitoring the minimum flow releases required by Part A of this condition. These plans shall be reviewed by and must receive approval of the DEP Bureau of Land and Water Quality.

3. DOWNRAMPING OF FLOWS

A. Except as temporarily modified by (1) approved maintenance activities, (2) extreme hydrologic conditions, as define below, (3) emergency electrical system conditions, as defined below, or (4) agreement between the applicant and appropriate state and/or federal agencies, the downramping of flows from the Deer Rips development from full generating flow to the required minimum flow shall be restricted to a rate no faster than linearly over 20 minutes.

B. "Extreme Hydrologic Conditions" means the occurrence of events beyond the Licensee's control such as, but not limited to, abnormal precipitation, extreme runoff, flood conditions, ice conditions or other hydrologic conditions such that the operational restrictions and requirements contained herein are impossible to achieve or are inconsistent with the safe operation of the Project.

C. "Emergency Electrical System Conditions" means operating emergencies beyond the applicant's control which require changes in flow regimes to eliminate such emergencies which may in some circumstances include, but are not limited to, equipment failure or other temporary abnormal operating condition, generating unit operation or third-party mandated interruptions under power supply emergencies, and orders from local, state, or federal law enforcement or public safety authorities.

D. The applicant shall, within 6 months of issuance of a New License for the project by FERC or upon such other schedule as established by FERC, submit plans for providing the downramping of flows from the Deer Rips Development required by Part A of this condition. These plans shall be reviewed by and must receive approval of the DEP Bureau of Land and Water Quality.

4. FISH PASSAGE FACILITIES

Based on a written request from the Atlantic Salmon Commission that fish passage facilities be installed on the main stem of the Androscoggin River above Lewiston Falls to facilitate the restoration of Atlantic salmon, the applicant shall install such fish passage facilities as may be required by the Department, after notice to the applicant and the opportunity for a hearing, to allow the migration of Atlantic salmon into and out of the river above the project dams.

5. GULF ISLAND POND OXYGENATION

A. The applicant shall, effective on the date of issuance of this certification, continue to participate in the partnership with Fraser Paper, Rumford Paper Company, and International Paper or their successors in interest, as described in section 4(c) of this certification, to operate and maintain an oxygen injection system at Upper Narrows in such manner as is currently approved by the Department.

B. The applicant shall, within 5 years from the date of issuance of this certification, inject up to 14,700 pounds per day of oxygen at Upper Narrows and up to 55,900 pounds per day of oxygen at Lower Narrows, at an oxygen transfer efficiency rate of 33%, or take other equivalent measures as may be approved by the Department, in order to mitigate the impact of Gulf Island Dam on dissolved oxygen levels in Gulf Island Pond.

C. The applicant shall, within 2 years from the date of issuance of this certification, submit a detailed plan and schedule for injecting oxygen at Upper Narrows and Lower Narrows as required by Part A of this condition, or a plan and schedule for taking other equivalent measures as may be approved by the Department, prepared in consultation with the Department and with Fraser Paper, Rumford Paper Company and International Paper or their successors in interest. These plans shall be reviewed by and must received the approval of the DEP Bureau of Land and Water Quality.

D. The applicant shall, in consultation with Fraser Paper, Rumford Paper Company and International Paper or their successors in interest, conduct follow-up monitoring to assure that the additional oxygenation, or other equivalent measures, and reduced point source discharges implemented pursuant to the May 2005 Androscoggin River Total Maximum Daily Load (TMDL) Report are sufficient to meet Class C dissolved oxygen standards in Gulf Island Pond.

E. The applicant shall, within 5 years from the date of issuance of this certification, submit plans for follow-up monitoring to assure that the additional oxygenation, or other equivalent measures, and reduced point source discharges implemented pursuant to the May 2005 Androscoggin River Total Maximum Daily Load (TMDL) Report are sufficient to meet Class C dissolved oxygen standards in Gulf Island Pond, prepared in consultation with Fraser Paper, Rumford Paper Company and International Paper or their successors in interest. These plans shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

F. The applicant shall, in accordance with a schedule set forth and approved in the study plan, submit a report on the results of the follow-up monitoring conducted pursuant to Part C of this condition to assure that the additional oxygenation, or other equivalent measures, and reduced point source discharges implemented pursuant to the May 2005 Androscoggin River Total Maximum Daily Load (TMDL) Report are sufficient to meet Class C dissolved oxygen standards in Gulf Island Pond. The monitoring report shall include the applicant's recommendations for any changes in the oxygen injection system(s) and/or oxygen injection rates, or other equivalent measures, found to be necessary to meet Class C dissolved oxygen standards in Gulf Island Pond.

G. The applicant shall be responsible for taking such actions as are needed to meet Class C dissolved oxygen standards in Gulf Island Pond, insofar as Gulf Island Dam causes or contributes to a violation of these standards. After reviewing the report on the results of the follow-up monitoring, and after notice to the applicant and opportunity for hearing,

the Department will reopen and modify the terms of this certification to require reasonable changes in the oxygen injection system(s) and/or oxygen injection rates, or changes in other equivalent measures, as may be deemed necessary to meet Class C dissolved oxygen standards in Gulf Island Pond.

6. GULF ISLAND POND PHOSPHORUS CONTROL

A. The applicant shall, no later than June 1, 2006, contribute $100,000 towards the capitol cost of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plant effluent, or take other equivalent measures as may be approved by the Department, in order to mitigate the impact of Gulf Island Dam on the designated use of recreation in and on the water in Gulf Island Pond.

B. The applicant shall, within 6 months of the date of issuance of this certification, submit a plan and schedule for contributing toward the capitol cost of chemical-addition equipment to remove phosphorus from the Livermore Falls municipal wastewater treatment plants effluent as required by Part A of this condition, or a plan and schedule for taking other equivalent measures as may be approved by the Department, prepared in consultation with the Department and the Town of Livermore Falls. This plan shall be reviewed by and must receive the approval of the DEP Bureau of Land and Water Quality.

C. The Department reserves the right, after notice to the applicant and opportunity for hearing, to reopen and modify the terms of this certification to impose new conditions regarding mitigation for the impact of Gulf Island Dam on algae blooms as may be warranted in the future based on the results of the study provided for in P.L. 2005 Chapter 409. In accordance with P.L. 2005 Chapter 409, the applicant will not be required to implement any alterations to the operation of Gulf Island Dam in lieu of discharger reductions unless the dischargers compensate the dam owner for such alterations.

7. RECREATIONAL ACCESS AND USE FACILITIES

A. The applicant shall develop, maintain and monitor the new and existing public recreational access and use facilities, and shall develop and maintain the facility improvements, as described in Section 8 of this order.

B. The applicant shall, within one year of issuance of a New License for the project by FERC or upon such other schedule as established by FERC, submit plans for developing, maintaining and monitoring the recreational access and use facilities required by Part A of this condition. These plans shall be reviewed by and must receive approval of the DEP Bureau of Land and Water Quality.

8. LIMITS OF APPROVAL

This approval is limited to and includes the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. All variances from the plans and proposals contained in said documents are subject to the review and approval of the Department prior to implementation.

9. COMPLIANCE WITH ALL APPLICABLE LAWS

The applicant shall secure and appropriately comply with all applicable federal, state and local licenses, permits, authorizations, conditions, agreements and orders required for the operation of the project, in accordance with the terms of this certification.

10. EFFECTIVE DATE

This water quality certification shall be effective concurrent with the effective date of the new license issued for the projectby the Federal Energy Regulatory Commission.

11. SEVERABILITY

In the event that any provision, or part thereof, of this certification is declared to be unlawful by a reviewing court, the remainder of the certification shall remain in full force and effect, and shall be construed and enforced in all respects as if such unlawful provision, or part thereof, had been omitted, unless otherwise ordered by the court.

DONE AND DATED AT AUGUSTA, MAINE, THIS *21st* DAY OF *September*, 2005.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: */s/ Dawn R. Gallagher*
Dawn R. Gallagher, Commissioner

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of receipt of application: 09/07/2005
Date application accepted for processing: 09/08/2005

(Initial application received 12/03/91 and subsequently withdrawn and refiled 11/24/92, 11/24/93, 11/17/94, 11/16/95, 11/14/96, 10/30/1997, 10/30/1998, 10/28/1999, 09/29/2000, 09/28/2001, 09/26/2002, 09/26/2003, 09/24/2004, and 09/07/2005.)

Date filed with the Board of Environmental Protection:*September 21, 2005*